

APPENDIX 4 – Scientific domains and research areas

Domain Code:	SH
Subdomain Code:	SH1, SH2, SH3, SH4, SH5, SH6
Research Area Code:	SH1_1..SH1_12, SH2_1..SH2_14....

DOMAIN SOCIAL SCIENCES AND HUMANITIES

SH1	Individuals, institutions and markets: economics, finance and management
SH1_1	Macroeconomics, growth, business cycles
SH1_2	Microeconomics, institutional economics
SH1_3	Econometrics, statistical methods
SH1_4	Financial markets, banking and corporate finance
SH1_5	Competitiveness, innovation, research and development
SH1_6	Consumer choice, behavioral economics, marketing
SH1_7	Organization studies, strategy
SH1_8	Human resource management, employment and earnings
SH1_9	Public administration, public economics
SH1_10	Income distribution, poverty
SH1_11	International trade, economic geography
SH1_12	Economic history, development
SH2	Institutions, values, beliefs and behavior: sociology, social anthropology, political science, law, communication, social studies of science and technology
SH2_1	Social structure, inequalities, social mobility
SH2_2	Ageing, work, social policies
SH2_3	Kinship, cultural dimensions of classification and cognition, individual and social identity, gender
SH2_4	Myth, ritual, symbolic representations, religious studies
SH2_5	Ethnography
SH2_6	Globalization, migration, interethnic relations
SH2_7	Transformation of societies, democratization, social movements
SH2_8	Political systems, legitimacy of governance
SH2_9	Legal systems, constitutions, foundations of law
SH2_10	Private, public and social law
SH2_11	Global and transnational governance, international law, human rights

SH2_12	Communication networks, media, information society
SH2_13	Social studies of science and technology, S&T policies, science and society
SH2_14	History of science and technology
SH3	Environment and society: environmental studies, demography, social geography, urban and regional studies
SH3_1	Environment and sustainability
SH3_2	Environmental regulation and mediation
SH3_3	Social and industrial ecology
SH3_4	Geographical information systems, cartography
SH3_5	Human and social geography
SH3_6	Spatial and regional planning
SH3_7	Population dynamics
SH3_8	Urbanization and urban planning, cities
SH3_9	Mobility and transportation
SH4	The Human Mind and its complexity: cognition, psychology, linguistics, philosophy and education
SH4_1	Evolution of mind and cognitive functions, animal communication
SH4_2	Human life-span development
SH4_3	Neuropsychology and cognitive psychology
SH4_4	Clinical and experimental psychology
SH4_5	Formal, cognitive, functional and computational linguistics
SH4_6	Typological, historical and comparative linguistics
SH4_7	Acquisition and knowledge of language: psycholinguistics, neurolinguistics
SH4_8	Use of language: pragmatics, sociolinguistics, discourse analysis
SH4_9	Second language teaching and learning, language pathologies, lexicography, terminology
SH4_10	Philosophy, history of philosophy
SH4_11	Epistemology, logic, philosophy of science
SH4_12	Ethics and morality, bioethics
SH4_13	Education: principles, techniques, typologies
SH5	Cultures and cultural production: literature, visual and performing arts, music, cultural and comparative studies
SH5_1	Classics
SH5_2	History of literature
SH5_3	Literary theory and comparative literature, literary styles
SH5_4	Textual philology and palaeography

SH5_5	Visual arts
SH5_6	Performing arts
SH5_7	Museums and exhibitions
SH5_8	Numismatics, epigraphy
SH5_9	Music and musicology, history of music
SH5_10	History of art and architecture
SH5_11	Cultural studies, cultural diversity
SH5_12	Cultural memory, intangible cultural heritage
SH6	The study of the human past: archaeology, history and memory
SH6_1	Archaeology, archaeometry, landscape archaeology
SH6_2	Prehistory and protohistory
SH6_3	Ancient history, ancient cultures
SH6_4	Medieval history
SH6_5	Modern and contemporary history
SH6_6	Colonial history, entangled histories, global history
SH6_7	Military history
SH6_8	Historiography, theory and methods of history
SH6_9	History of ideas, intellectual history
SH6_10	Social, economic, cultural and political history
SH6_11	Collective memories, identities, lieux de mémoire, oral history
SH6_12	Cultural heritage

Domain Code:	PE
Subdomain Code:	PE1, PE2, PE3 .. PE10
Research Area Code:	PE1_1..PE_18, PE2_1..PE2_17....

DOMAIN
MATHEMATICS, PHYSICAL SCIENCES, INFORMATION AND COMMUNICATION,
ENGINEERING, UNIVERSE AND EARTH SCIENCES

PE1	Mathematical foundations: all areas of mathematics, pure and applied, plus mathematical foundations of computer science, mathematical physics and statistics
PE1_1	Logic and foundations
PE1_2	Algebra
PE1_3	Number theory
PE1_4	Algebraic and complex geometry
PE1_5	Geometry
PE1_6	Topology
PE1_7	Lie groups, Lie algebras
PE1_8	Analysis
PE1_9	Operator algebras and functional analysis
PE1_10	ODE and dynamical systems
PE1_11	Partial differential equations
PE1_12	Mathematical physics
PE1_13	Probability and statistics
PE1_14	Combinatorics
PE1_15	Mathematical aspects of computer science
PE1_16	Numerical analysis and scientific computing
PE1_17	Control theory and optimization
PE1_18	Application of mathematics in sciences
PE2	Fundamental constituents of matter: particle, nuclear, plasma, atomic, molecular, gas, and optical physics
PE2_1	Fundamental interactions and fields
PE2_2	Particle physics
PE2_3	Nuclear physics
PE2_4	Nuclear astrophysics
PE2_5	Gas and plasma physics
PE2_6	Electromagnetism
PE2_7	Atomic, molecular physics

PE2_8	Optics and quantum optics
PE2_9	Lasers and laser physics
PE2_10	Acoustics
PE2_11	Relativity
PE2_12	Classical physics
PE2_13	Thermodynamics
PE2_14	Non-linear physics
PE2_15	General physics
PE2_16	Metrology and measurement
PE2_17	Statistical physics (gases)
PE3	Condensed matter physics: structure, electronic properties, fluids, nanosciences
PE3_1	Structure of solids and liquids
PE3_2	Mechanical and acoustical properties of condensed matter
PE3_3	Thermal properties of condensed matter
PE3_4	Transport properties of condensed matter
PE3_5	Electronic properties of materials and transport
PE3_6	Lattice dynamics
PE3_7	Semiconductors
PE3_8	Superconductivity
PE3_9	Superfluids
PE3_10	Spintronics
PE3_11	Magnetism
PE3_12	Nanophysics: nanoelectronics, nanophotonics, nanomagnetism
PE3_13	Mesoscopic physics
PE3_14	Molecular electronics
PE3_15	Soft condensed matter (liquid crystals...)
PE3_16	Fluid dynamics (physics)
PE3_17	Statistical physics (condensed matter)
PE3_18	Phase transitions, phase equilibria
PE3_19	Biophysics
PE4	Physical and Analytical Chemical sciences: analytical chemistry, chemical theory, physical chemistry/chemical physics
PE4_1	Physical chemistry
PE4_2	Nanochemistry

PE4_3	Spectroscopic and spectrometric techniques
PE4_4	Molecular architecture and Structure
PE4_5	Surface science
PE4_6	Analytical chemistry
PE4_7	Chemical physics
PE4_8	Chemical instrumentation
PE4_9	Electrochemistry, electrodialysis, microfluidics
PE4_10	Combinatorial chemistry
PE4_11	Method development in chemistry
PE4_12	Catalysis
PE4_13	Physical chemistry of biological systems
PE4_14	Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions
PE4_15	Theoretical and computational chemistry
PE4_16	Radiation chemistry
PE4_17	Nuclear chemistry
PE4_18	Photochemistry
PE5	Materials and Synthesis: materials synthesis, structure-properties relations, functional and advanced materials, molecular architecture, organic chemistry
PE5_1	Structural properties of materials
PE5_2	Solid state materials
PE5_3	Surface modification
PE5_4	Thin films
PE5_5	Corrosion
PE5_6	Porous materials
PE5_7	Ionic liquids
PE5_8	New materials: oxides, alloys, composite, organic-inorganic hybrid, superconductors
PE5_9	Materials for sensors
PE5_10	Nanomaterials : nanoparticles, nanotubes
PE5_11	Biomaterials synthesis
PE5_12	Intelligent materials – self assembled materials
PE5_13	Environment chemistry
PE5_14	Coordination chemistry
PE5_15	Colloid chemistry
PE5_16	Biological chemistry

PE5_17	Chemistry of condensed matter
PE5_18	Homogeneous and heterogeneous catalysis
PE5_19	Characterization methods of materials
PE5_20	Macromolecular chemistry
PE5_21	Polymer chemistry
PE5_22	Supramolecular chemistry
PE5_23	Organic chemistry
PE5_24	Molecular chemistry
PE6	Computer science and informatics: informatics and information systems, computer science, scientific computing, intelligent systems
PE6_1	Computer architecture
PE6_2	Database management
PE6_3	Formal methods
PE6_4	Graphics and image processing
PE6_5	Human computer interaction and interface
PE6_6	Informatics and information systems
PE6_7	Theoretical computer science including quantum information
PE6_8	Intelligent systems
PE6_9	Scientific computing
PE6_10	Modelling tools
PE6_11	Multimedia
PE6_12	Parallel and Distributed Computing
PE6_13	Speech recognition
PE6_14	Systems and software
PE7	Systems and communication engineering: electronic, communication, optical and systems engineering
PE7_1	Control engineering
PE7_2	Electrical and electronic engineering: semiconductors, components, systems
PE7_3	Simulation engineering and modelling
PE7_4	Systems engineering, sensorics, actorics, automation
PE7_5	Micro- and nanoelectronics, optoelectronics
PE7_6	Communication technology, high-frequency technology
PE7_7	Signal processing
PE7_8	Networks
PE7_9	Man-machine-interfaces

PE7_10	Robotics
PE8	Products and process engineering: product design, process design and control, construction methods, civil engineering, energy systems, material engineering
PE8_1	Aerospace engineering
PE8_2	Chemical engineering, technical chemistry
PE8_3	Civil engineering, maritime/hydraulic engineering, geotechnics, waste treatment
PE8_4	Computational engineering
PE8_5	Fluid mechanics, hydraulic-, turbo-, and piston engines
PE8_6	Energy systems (production, distribution, application)
PE8_7	Micro(system) engineering
PE8_8	Mechanical and manufacturing engineering (shaping, mounting, joining, separation)
PE8_9	Materials engineering (biomaterials, metals, ceramics, polymers, composites, ...)
PE8_10	Production technology, process engineering
PE8_11	Product design, ergonomics, man-machine interfaces
PE8_12	Lightweight construction, textile technology
PE8_13	Industrial bioengineering
PE8_14	Industrial biofuel production
PE9	Universe sciences: astro-physics/chemistry/biology; solar system; stellar, galactic and extragalactic astronomy, planetary systems, cosmology; space science, instrumentation
PE9_1	Solar and interplanetary physics
PE9_2	Planetary systems sciences
PE9_3	Interstellar medium
PE9_4	Formation of stars and planets
PE9_5	Astrobiology
PE9_6	Stars and stellar systems
PE9_7	The Galaxy
PE9_8	Formation and evolution of galaxies
PE9_9	Clusters of galaxies and large scale structures
PE9_10	High energy and particles astronomy – X-rays, cosmic rays, gamma rays, neutrinos
PE9_11	Relativistic astrophysics
PE9_12	Dark matter, dark energy
PE9_13	Gravitational astronomy
PE9_14	Cosmology
PE9_15	Space Sciences
PE9_16	Very large data bases: archiving, handling and analysis

PE9_17	Instrumentation - telescopes, detectors and techniques
PE9_18	Solar planetology
PE10	Earth system science: physical geography, geology, geophysics, meteorology, oceanography, climatology, ecology, global environmental change, biogeochemical cycles, natural resources management
PE10_1	Atmospheric chemistry, atmospheric composition, air pollution
PE10_2	Meteorology, atmospheric physics and dynamics
PE10_3	Climatology and climate change
PE10_4	Terrestrial ecology, land cover change,
PE10_5	Geology, tectonics, volcanology,
PE10_6	Paleoclimatology, paleoecology
PE10_7	Physics of earth's interior, seismology, volcanology
PE10_8	Oceanography (physical, chemical, biological)
PE10_9	Biogeochemistry, biogeochemical cycles, environmental chemistry
PE10_10	Mineralogy, petrology, igneous petrology, metamorphic petrology
PE10_11	Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics,
PE10_12	Sedimentology, soil science, palaeontology, earth evolution
PE10_13	Physical geography
PE10_14	Earth observations from space/remote sensing
PE10_15	Geomagnetism, paleomagnetism
PE10_16	Ozone, upper atmosphere, ionosphere
PE10_17	Hydrology, water and soil pollution

Domain Code:	LS
Subdomain Code:	LS1,LS2.....LS9
Research Area Code:	LS1_1....LS1_8,LS2_1....LS2_14.....

**DOMAIN
LIFE SCIENCES**

LS1	Molecular and Structural Biology and Biochemistry: molecular biology, biochemistry, biophysics, structural biology, biochemistry of signal transduction
LS1_1	Molecular biology and interactions
LS1_2	General biochemistry and metabolism
LS1_3	DNA biosynthesis, modification, repair and degradation
LS1_4	RNA synthesis, processing, modification and degradation
LS1_5	Protein synthesis, modification and turnover
LS1_6	Biophysics
LS1_7	Structural biology (crystallography, NMR, EM)
LS1_8	Biochemistry of signal transduction
LS2	Genetics, Genomics, Bioinformatics and Systems Biology: genetics, population genetics, molecular genetics, genomics, transcriptomics, proteomics,metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and simulation, systems biology, genetic epidemiology
LS2_1	Genomics, comparative genomics, functional genomics
LS2_2	Transcriptomics
LS2_3	Proteomics
LS2_4	Metabolomics
LS2_5	Glycomics
LS2_6	Molecular genetics, reverse genetics and RNAi
LS2_7	Quantitative genetics
LS2_8	Epigenetics and gene regulation
LS2_9	Genetic epidemiology
LS2_10	Bioinformatics
LS2_11	Computational biology
LS2_12	Biostatistics
LS2_13	Systems biology
LS2_14	Biological systems analysis, modelling and simulation
LS3	Cellular and Developmental Biology: cell biology, cell physiology, signal transduction, organogenesis, developmental genetics, pattern formation in plants and animals
LS3_1	Morphology and functional imaging of cells
LS3_2	Cell biology and molecular transport mechanisms

LS3_3	Cell cycle and division
LS3_4	Apoptosis
LS3_5	Cell differentiation, physiology and dynamics
LS3_6	Organelle biology
LS3_7	Cell signalling and cellular interactions
LS3_8	Signal transduction
LS3_9	Development, developmental genetics, pattern formation and embryology in animals
LS3_10	Development, developmental genetics, pattern formation and embryology in plants
LS3_11	Cell genetics
LS3_12	Stem cell biology
LS4	Physiology, Pathophysiology and Endocrinology: organ physiology, pathophysiology, endocrinology, metabolism, ageing, regeneration, tumorigenesis, cardiovascular disease, metabolic syndrome
LS4_1	Organ physiology
LS4_2	Comparative physiology
LS4_3	Endocrinology
LS4_4	Ageing
LS4_5	Metabolism, biological basis of metabolism related disorders
LS4_6	Cancer and its biological basis
LS4_7	Cardiovascular diseases
LS4_8	Non-communicable diseases (except for neural/psychiatric, immunity-related, metabolism-related disorders, cancer and cardiovascular diseases)
LS5	Neurosciences and neural disorders: neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, neurological disorders, psychiatry
LS5_1	Neuroanatomy and neurosurgery
LS5_2	Neurophysiology
LS5_3	Neurochemistry and neuropharmacology
LS5_4	Sensory systems (e.g. visual system, auditory system)
LS5_5	Mechanisms of pain
LS5_6	Developmental neurobiology
LS5_7	Cognition (e.g. learning, memory, emotions, speech)
LS5_8	Behavioral neuroscience (e.g. sleep, consciousness, handedness)
LS5_9	Systems neuroscience
LS5_10	Neuroimaging and computational neuroscience
LS5_11	Neurological disorders (e.g. Alzheimer's disease, Huntington's disease, Parkinson's disease)

LS5_12	Psychiatric disorders (e.g. schizophrenia, autism, Tourette's syndrome, obsessive compulsive disorder, depression, bipolar disorder, attention deficit hyperactivity disorder)
LS6	Immunity and infection: immunobiology, aetiology of immune disorders, microbiology, virology, parasitology, global and other infectious diseases, population dynamics of infectious diseases, veterinary medicine
LS6_1	Innate immunity
LS6_2	Adaptive immunity
LS6_3	Phagocytosis and cellular immunity
LS6_4	Immunosignalling
LS6_5	Immunological memory and tolerance
LS6_6	Immunogenetics
LS6_7	Microbiology
LS6_8	Virology
LS6_9	Bacteriology
LS6_10	Parasitology
LS6_11	Prevention and treatment of infection by pathogens (e.g. vaccination, antibiotics, fungicide)
LS6_12	Biological basis of immunity related disorders
LS6_13	Veterinary medicine
LS7	Diagnostic tools, therapies and public health: aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, clinical medicine, regenerative medicine, medical ethics
LS7_1	Medical engineering and technology
LS7_2	Diagnostic tools (e.g. genetic, imaging)
LS7_3	Pharmacology, pharmacogenomics, drug discovery and design, drug therapy
LS7_4	Analgesia
LS7_5	Toxicology
LS7_6	Gene therapy, stem cell therapy, regenerative medicine
LS7_7	Surgery
LS7_8	Radiation therapy
LS7_9	Health services, health care research
LS7_10	Public health and epidemiology
LS7_11	Environment and health risks including radiation
LS7_12	Occupational medicine
LS7_13	Medical ethics
LS8	Evolutionary, population and environmental biology: evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology,eco-toxicology, prokaryotic biology
LS8_1	Ecology (theoretical, community, population, microbial, evolutionary ecology)
LS8_2	Population biology, population dynamics, population genetics, plant-animal interactions

LS8_3	Systems Evolution, biological adaptation, phylogenetics, systematics
LS8_4	Biodiversity, comparative biology
LS8_5	Conservation biology, ecology, genetics
LS8_6	Biogeography
LS8_7	Animal behaviour (behavioural ecology, animal communication)
LS8_8	Environmental and marine biology
LS8_9	Environmental toxicology
LS8_10	Prokaryotic biology
LS8_11	Symbiosis
LS9	Applied life sciences and biotechnology: agricultural, animal, fishery, forestry and food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology and remediation
LS9_1	Genetic engineering, transgenic organisms, recombinant proteins, biosensors
LS9_2	Synthetic biology and new bio-engineering concepts
LS9_3	Agriculture related to animal husbandry, dairying, livestock raising
LS9_4	Aquaculture, fisheries
LS9_5	Agriculture related to crop production, soil biology and cultivation, applied plant biology
LS9_6	Food sciences
LS9_7	Forestry, biomass production (e.g. for biofuels)
LS9_8	Environmental biotechnology, bioremediation, biodegradation
LS9_9	Biotechnology, bioreactors, applied microbiology
LS9_10	Biomimetics
LS9_11	Biohazards, biological containment, biosafety, biosecurity

Research areas in the social sciences:

SH1_1 Macroeconomics, growth, business cycles

SH1_2 Microeconomics, institutional economics

SH1_3 Econometrics, statistical methods

SH1_4 Financial markets, banking and corporate finance

SH1_5 Competitiveness, innovation, research and development

SH1_6 Consumer choice, behavioural economics, marketing

SH1_7 Organization studies, strategy

SH1_8 Human resource management, employment and earnings

SH1_9 Public administration, public economics

SH1_10 Income distribution, poverty

SH1_11 International trade, economic geography

SH2_1 Social structure, inequalities, social mobility

SH2_2 Ageing, work, social policies

SH2_3 Kinship, cultural dimensions of classification and cognition, individual and social identity, gender

SH2_6 Globalization, migration, interethnic relations

SH2_7 Transformation of societies, democratization, social movements

SH2_8 Political systems, legitimacy of governance

SH2_9 Legal systems, constitutions, foundations of law

SH2_10 Private, public and social law

SH2_11 Global and transnational governance, international law, human rights

SH2_12 Communication networks, media, information society

SH2_13 Social studies of science and technology, S&T policies, science and society

SH3_1 Environment and sustainability

SH3_2 Environmental regulation and mediation

SH3_3 Social and industrial ecology

SH3_4 Geographical information systems, cartography

SH3_5 Human and social geography

SH3_6 Spatial and regional planning

SH3_7 Population dynamics

SH3_8 Urbanization and urban planning, cities

SH3_9 Mobility and transportation

SH4_1 Evolution of mind and cognitive functions, animal communication

SH4_2 Human life-span development

SH4_3 Neuropsychology and cognitive psychology

SH4_4 Clinical and experimental psychology,

SH4_5 Formal, cognitive, functional and computational linguistics

SH4_7 Acquisition and knowledge of language: psycholinguistics, neurolinguistics

SH4_8 Use of language: pragmatics, sociolinguistics, discourse analysis

SH4_9 second language teaching and learning, language pathologies, lexicography, terminology

SH4_13 Education: principles, techniques, typologies

Research areas in the humanities:

SH1_12 Economic history, development

SH2_4 Myth, ritual, symbolic representations, religious studies

SH2_5 Ethnography

SH2_14 History of science and technology

SH4_6 Typological, historical and comparative linguistics

SH4_10 Philosophy, history of philosophy

SH4_11 Epistemology, logic, philosophy of science

SH4_12 Ethics and morality, bioethics
SH5_1 Classics
SH5_2 History of literature
SH5_3 Literary theory and comparative literature, literary styles
SH5_4 Textual philology and palaeography
SH5_5 Visual arts
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SH5_7 Museums and exhibitions
SH5_8 Numismatics, epigraphy
SH5_9 Music and musicology, history of music
SH5_10 History of art and architecture
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SH5_12 Cultural memory, intangible cultural heritage
SH6_1 Archaeology, archaeometry, landscape archaeology
SH6_2 Prehistory and protohistory
SH6_3 Ancient history, ancient cultures
SH6_4 Medieval history
SH6_5 Modern and contemporary history
SH6_6 Colonial history, entangled histories, global history
SH6_7 Military history,
SH6_8 Historiography, theory and methods of history
SH6_9 History of ideas, intellectual history
SH6_10 Social, economic, cultural and political history
SH6_11 Collective memories, identities, lieux de mémoire, oral history
SH6_12 Cultural heritage

Research areas with a national Romanian character are the Romanian language and literature and Romanian law which fall into the following research areas:

SH2_10 Private, public and social law
SH5_2 History of literature
SH5_3 Literary theory and comparative literature, literary styles
SH5_4 Textual philology and palaeography